



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,000	06/24/2003	Kazutoshi Onozawa	60188-541	9084

7590 02/23/2004

Jack Q. Lever, Jr.
McDERMOTT, WILL & EMERY
600 Thirteenth Street, N.W.
Washington, DC 20005-3096

EXAMINER

LEE, CALVIN

ART UNIT PAPER NUMBER

2825

DATE MAILED: 02/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/602,000

Applicant(s)

ONOZAWA, KAZUTOSHI

Examiner

Lee Calvin

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 7, 9, 10 and 12 is/are rejected.
- 7) ☒ Claim(s) 4, 6, 8 and 11 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

OFFICE ACTION

Specification

1. The specification is objected to because of the following informality:
Page 14 line 19, replace "laser chip 11" with --laser chips 11--

Claim Objections

2. Claim 3 is objected to because of the following informality:
Claim 3, line 1, replace "before the step (c)" with --after the step (c)--

Claim Rejections - 35 U.S.C. § 103

3. The following is a quotation of the appropriate paragraph of 35 U.S.C. 103(a) that form the basis for the rejections under this section made in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 5, 7, 9-10, and 12 are rejected under 35 U.S.C. 103(a) as obvious over *Smith et al* (US 5,545,291).

Smith et al discloses a semiconductor device fabrication method comprising the steps of:

- forming a recess structure **53** on a principal surface of a substrate **50**, having openings **55** that are located to correspond to a pattern in which a plurality of semiconductor elements **19** are to be arranged [Fig. 6], wherein elements **19** (i.e., the micron sized blocks) can be LED (light emitting diodes), lasers, transistors, chips, etc...[col. 3, ln.27]
- forming a plurality of metal electrodes **73** for making the associated elements electrically conductive, on parts of the substrate's surface where the elements are to be arranged [Fig. 8]
- spreading the semiconductor elements into a liquid and pouring the semiconductor-element-spread liquid over the substrate on which the template is held, thereby allowing the elements to be disposed into the respective openings in the template in a self-aligned manner [Fig. 21]
- securing the semiconductor elements to the associated electrodes by heating [col. 13, ln.15]

Although *Smith et al* does not disclose holding a template on the substrate's surface, *Smith et al* suggests a similar structure **53** that has recesses or openings **55** and is held on the substrate **50**.

It would have been obvious to one of ordinary skill to have modified the semiconductor device of *Smith et al* by utilizing a distinct template held on a substrate for the purpose of easy removal of the mounted template.

- b) In re claim 2, since *Smith et al* discloses that “holder 919 is capable of moving ... agitates or orients substrate 911” [col. 12, ln.13], *Smith et al* inherently teaches or suggests that the template-holding substrate being rotated in its principal surface.
- c) In re claim 7, *Smith et al* discloses that the semiconductor elements are edge-emitting semiconductor laser elements 175 that emit a laser beam from a top facet, and the openings of the template 173 are formed so that the respective emission directions of the laser elements are aligned in one direction (outward from the top facet) [Fig. 14 and col.18].
- d) In re claims 9-10 and 12, *Smith et al* discloses that the openings of the recess structure are formed to correspond to the configurations of the semiconductor elements to be arranged. Those semiconductor elements differ from each other in configuration on the side --not limited to the square-shaped block [Fig. 12], but may be varied, for instance a polygone-shaped block or a circle-shaped block, depending upon the application and function.

Allowable Subject Matter

5. Claims 4, 6, 8, and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. *Smiths et al* is silent about such process features as:
- * removal of the template from the substrate;
 - * an optical output from a front facet being equivalent in value to optical output from a rear facet;
 - * the openings of a template differ from each other in configuration in accordance with the emission wavelengths of semiconductor light emitters.

Any inquiry concerning this communication from the Examiner should be directed to *Calvin Lee* at (571) 272-1896 from 7:00 to 17:00 (Monday-Thursday). If attempts to reach the examiner by telephone are unsuccessful, Art Unit 2825's Supervisory Patent Examiner *Matthew Smith* can be reached at (571) 272-1907

Any inquiry relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0596. The fax phones are (703) 872-9318 for regular communications and (703) 872-9319 for After-Final communications.



Calvin Lee

Patent Examiner